CALIFORNIA ~~STATE~~ BOARD OF HEALTH.

MONTHLY BULLETIN.

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STATE BOARD OF HEALTH.

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STATE HYGIENIC LABORATORY.

Archibald R. Ward, D.V.M., *Director* University of California, Berkeley

VITAL STATISTICS FOR FEBRUARY.

Summary.—The vital statistics reported for February are as follows: Living births, 1,762; deaths, exclusive of stillbirths, 2,223; and marriages, 1,231, or 2,462 persons married. On the basis of an estimated population of 1,853,561 for the State, exclusive of Humboldt County not yet reporting, the returns for February give the following annual rates: Births, 12.9; deaths, 15.6; and marriages, 8.6, or 17.2 persons married, per 1,000 inhabitants. The corresponding rates for January were: Births, 12.4; deaths, 17.4; and marriages, 9.9, or 19.8 persons married. So February, as compared with January, shows a slight increase in the birth-rate, with decreases in the rates for deaths and marriages, especially for deaths.

As usual, tuberculosis was the principle cause of death in California. While in January pneumonia led heart disease for second place, in February the proportion of all deaths caused by diseases of the respiratory system was considerably less than that for diseases of the circulatory system.

Causes of Death.—The following table gives the number of deaths, by principal classes, reported for California in January and February, respectively. For convenience in comparison, the proportion from each class per 1,000 deaths from all causes is likewise shown:

Class.	Number.		Proportion per 1,000.	
	January.	February.	January.	February.
All Causes	2,670	2,223	1,000.0	1,000.0
General Diseases	773	700	289.5	314.9
Epidemic diseases	156	130	58.4	58.5
Other general diseases	617	570	231.1	256.4
Nervous System	255	209	95.5	94.0
Circulatory System	362	321	135.6	144.4
Respiratory System	468	278	175.3	125.1
Digestive System	188	146	70.4	65.7
Genito-Urinary System	176	151	65.9	67.9
Violence	190	193	71.2	86.8
All Others	258	225	96.6	101.2

In each month, especially February, the proportion is highest for other than epidemic general diseases, the class which includes tuberculosis. In January, the proportion for diseases of the respiratory system (pneumonia, bronchitis, etc.) was much higher than that for diseases of the circulatory system (heart disease, diseases of the arteries, etc.). In February, however, conditions are reversed, the proportion for diseases of the respiratory system being considerably less than that for diseases of the circulatory system. This indicates that with the passing of winter there comes a falling off in the deaths due to pneumonia.

PUBLIC HEALTH ASSOCIATION.

The Sixth Session of the California Public Health Association will be held in San Francisco on April 16th. The committee has thought best to devote the time largely to a discussion of the water supplies of the State. As much of the pollution of the streams arises from sewage which is conducted into them, its disposal is entirely germane to the question.

An hour will be devoted to questions and answers, and much good should be derived from this hour, where each can give and take.

Governor Pardee, who is always interested in the sanitary advancement of the State, will be present and will deliver an address. It is expected that at least one of the addresses will be illustrated with lantern slides.

Since this meeting comes the day before that of the State Medical Society, it will be possible for members to get the reduced rates on the railroads accorded to those attending the meeting of the latter society.

All health officers should come, and come loaded with suggestions for the betterment of our State.

CALIFORNIA PUBLIC HEALTH ASSOCIATION

SIXTH SESSION

BOARD OF HEALTH ROOM, CITY HALL, SAN FRANCISCO

APRIL 16, 1906

PROGRAM

10:00 A. M.—Greeting by the President, Dr. E. von Adelung, Oakland.

10:30 A. M.—"The Condition of California Water Supplies," Dr. N. K. Foster, Secretary of the State Board of Health.

NOON RECESS.

1:30 P. M.—Address, "Advantages of Organization," by Hon. George C. Pardee, Governor of California.

2:30 P. M.—"The Sanitary Quality and Purification of Public Water Supplies," by Prof. Charles G. Hyde, of the University of California.

3:30 P. M.—"Sanitary Disposal of Sewage," by George L. Hoxie, City Engineer of Fresno.

4:30 P. M.—One hour devoted to questions and answers.

Each paper will be open for general discussion immediately after its reading. The discussion of the "Sanitary Disposal of Sewage" will be opened by Dr. Charles F. Clark, of Willits.

Members of the Association will meet at the banquet board in the evening, when short addresses of a general character will be indulged in.

OFFICERS:

President, - Dr. Edward von Adelung.
Vice-President, - - - Dr. Wm. Simpson.
Secretary, - - - - - - Dr. N. K. Foster.

EXECUTIVE COMMITTEE:

Dr. J. W. Ward,
Dr. C. C. Browning,
Dr. E. N. Ewer,
Dr. Wm. Simpson,
Dr. D. F. Ragan,
Dr. W. C. Hassler.

SUMMER SCHOOL OF SANITARY SCIENCE.

The State University has issued the following bulletin in relation to a course on Public Health and Sanitary Science, to be given at the coming Summer Session, providing sufficient interest is shown:

> Public Health and Sanitary Science will be made a special department of the next Summer Session of the University of California, from June 25 to August 4, 1906, if sufficient applications are received before April 1st to warrant the undertaking.
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> The important problems in water supply and the disposal of sewage which constantly confront physicians and public officials will be the subject of a course offered by Charles Gilman Hyde, C.E., Assistant Professor of Sanitary Engineering, and recently a member of the engineering staff of the Massachusetts State Board of Health, which is charged by law with the inspection of the water systems and sewage plants of that commonwealth.
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> The bacteriology of infectious diseases will be discussed by Archibald R. Ward, Assistant Professor of Bacteriology and Director of the State Hygienic Laboratory. Students will have the opportunity of daily laboratory work in bacteriology and in the microscopical examination of specimens received at the State Hygienic Laboratory. An effort will be made to suit the laboratory work to the individual needs of individual students.
>
> This undertaking means much for the advancement of sanitary science and the protection of public health. Will you coöperate by informing others interested in such work of the opportunities offered by the University of California?
>
> It is earnestly requested that all persons who would hope to come to Berkeley for these courses should at once write to the Dean of the Summer Session, University of California, Berkeley.

An effort will be made to so arrange the work that should a physician find it possible to attend the Summer Session only for two or three weeks, he would be able to get the information which would concern him most. The fee for the Summer Session is $12.

This offers an exceptionally good opportunity for health officers and others interested in sanitation to get in touch with the most recent advancement in this important field. The health and life of the people are in no small degree in the hands of the health officer. On his knowledge and ability to correct wrong conditions is placed the hope and expectation of avoiding preventable disease. As a rule, health officers are able and willing workers, but many have had no special training for the position and labor under a great disadvantage, and it is a hopeful sign to see this interest shown by the State University. It is a step in the direction to what must surely come, a law requiring every health officer to attend for a few days each year a sanitary school where everything new, and much that is old, can be gone over and the useful taught in a way that will make it possible of application by the health officers.

As the city or town gets the advantage of these schools in improved methods and effective work, it should by right pay the necessary expense.

We sincerely hope that there will be many in attendance, for the character and ability of the men conducting it is sufficient guarantee that the course will be replete with interest and usefulness.

SMALLPOX.

Smallpox has been reported from so many parts of the State that it can be considered epidemic, and health officers are warned to be on their guard against it. There is so much activity in railroad building all over the State, and as several of the camps have become infected, it behooves the health officers of the localities where such camps are located to watch closely. The men are constantly moving from one to the other, and are particularly apt to move on when a case of smallpox appears. One case has come to our attention where the party left the camp he was in for another, after he began to feel the symptoms of the disease. It is quite possible that the move cost him his life. The present form of the disease is by no means light, quite a large percentage dying.

The law requires that health officers report all cases at once to the State Board of Health, and that means be taken to control it. This should be observed closely, as the fear that knowledge of its existence will cause notoriety and injure the locality is foolish. It is bound to be known, and at the present time what people want to know is, that every effort is being made to control it. If it is they are satisfied, but if there is an effort to suppress the fact of its existence they are at once suspicious, and the imagination multiplies the cases.

As far as we are informed, and our information reaches most of the cases, none having the disease were ever vaccinated. In one town a physician who had never been vaccinated is down, while the others who were equally exposed are free.

This emphasizes the need of universal vaccination, and it may not be amiss to review briefly the advantages of the operation, the amount of good it has done, and the small danger attending it.

Before the introduction of vaccination smallpox was the worst scourge in existence. It was conservatively estimated that in Europe alone over 200,000 died each year from it, and that great numbers were left blind or otherwise maimed for life. It was a disease of childhood and few attained to adult life without having had it. The protective influence of vaccination was first made known in 1798 and more or less extensively adopted during the next few years. Immediately following this there was a sudden decrease in the extent and mortality of the disease. This has often been credited to the improved sanitary conditions; but the fact that other contagious diseases, and especially filth diseases, decreased only in a very limited degree, proves this ground to be not well taken. Indeed, in cities where the growth was large and sanitary conditions worse, the mortality from smallpox decreased in the same ratio as in places where better sanitation prevailed.

Fortunately, careful records were kept in various countries, and from these it is easy to prove the effect of vaccination.

In Sweden, during the twenty-eight years preceding vaccination, 2,050 died annually from smallpox in every million population; during the forty years following vaccination, only 158 per million. In Prague, for the seven years before vaccination, one twelfth of the total deaths were from smallpox; during the thirty-five years after, the ratio was only 1 to 457. In Copenhagen, for fifty years before vaccination, the smallpox death-rate was 3,128, and for the fifty years after, 286. In Berlin, for twenty-four years before, the smallpox death-rate was 3,422, and for the next forty years only 176.*

Figures might be multiplied, but it is useless, for the experience of almost all physicians and all hospitals proves the protecting power of vaccination. That the protection in all cases extends throughout a long life is not claimed, but even if later in life the disease is contracted, it is much lighter and is seldom fatal. Every one, however, should be re-vaccinated, when the protection is almost perfect.

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*Figures taken from Welch and Schamberg's "Acute Contagious Diseases." (Philadelphia and New York, 1905.)

The danger attending the operation is very small, and when compared with the danger attending the disease, sinks into insignificance.

Every wound, no matter how slight, may become infected with disease-producing germs unless proper care is taken to prevent such an occurrence, and it is almost entirely from this cause that deaths occur after vaccination. In Germany Voight estimated but one death in 65,000 vaccinations, and in his own practice of five years he vaccinated 100,000 people with but one death. Compare this with the death-rate before vaccination, when from one in every twelve to twenty died with smallpox, and the life-saving effect of vaccination will be evident.

The dangers from vaccination may be classed as follows: 1st. Careless operation. 2d. Impure virus. 3d. Wound infection.

To avoid these, 1st. Employ none but a careful physician, who does his operation in an aseptic manner. 2d. Use only virus which is produced by manufacturers whose products are known to be pure or are examined and certified by the United States Government. The danger from impure virus is, at the present time, very small. Almost no humanized virus is used, and only healthy calves are used to produce the bovine virus. They are tested for tuberculosis and other diseases, and the virus produced is carefully examined by making cultures before it is sold. 3d. The wound must be kept clean and aceptic. In this class of wound-infection come almost all the deaths. Frequently no care whatever is taken of the wound. It is left to be rubbed and irritated by the clothing which may be none too clean, and often the child is allowed to play in the dirt of streets and stables. When dressings are put on, not infrequently they are allowed to become dirty and a source of danger. Nature does her best to protect the sore by a scab, but this is often scratched or rubbed off by the clothing, thus leaving a most excellent chance for infection. The scab should always be carefully guarded and never removed until it drops of itself.

There is also occasionally a case where the child or person is in such a physical condition that no careful doctor would care to vaccinate. These, of course, should not be vaccinated until the disease causing the disability has been removed.

It is often charged that vaccinia produces other diseases. This is as impossible as it would be to inoculate with measles and produce scarlet fever or plant corn and raise potatoes. That other diseases follow at once after vaccination is due to coincidence only. Among the millions vaccinated, it would be strange indeed if in some cases it did not immediately precede the development of some other disease, not as a cause, but merely by chance. With humanized virus it might be done, with pure bovine virus never.

The conclusions reached by a vast majority of medical men, and especially by those who have had exceptionally good chances of observation and study, are:

1st. That vaccination and re-vaccination will protect from smallpox, and that the lessened mortality and the changing from a disease of childhood to one of adult life is the result of this operation.

2d. That if proper care is observed the evil results of vaccination will be almost *nil*.

There seem to be two classes who oppose vaccination. First, a small class who seem to dislike to obey law or to do anything not dictated by their own will. To these we have only to say that the constitutionality of the compulsory vaccination law has been upheld by the Supreme Court of the United States. The other class, good, law-abiding citizens who want to obey the laws and to do right, but who honestly believe that there is danger lurking in the operation. They hear of a death following vaccination, and although it was as far from being the cause, and perhaps farther, than the breakfast eaten that morning, it gets the credit. To this class we earnestly appeal to study, in an unprejudiced way, the whole question and weigh the evidence for and against. It is a question of too great moment to be hastily decided from prejudice arising from a death following vaccination—a death which was not caused by the vaccination, but was rather the result of an inoculation which might as easily have been received through any other wound of the skin that was not kept clean and aseptic. Compare the death-rate from smallpox before vaccination was practiced, and now, taking into account that where vaccination is *not* practiced the death-rate is now as great as it ever was.

It is not a disease of filth, but attacks the clean and sanitary the same as the dirty and foul. Good health or fine houses do not protect, and if to some they seem immune, it is because they are thoroughly vaccinated. The charge that physicians urge it for the fees they get is too foolish to discuss. It would be on the same par as if the physicians in turn charged that the opponents were too stingy to pay for the protection. Vilification and abuse have no place in this important matter. The medical profession has given to the world an easy, simple, and practically harmless method of avoiding the most terrible scourge that has ever devastated the world. Accidents have followed its application, so have bad men crept into the most sacred societies; but both evils can be eliminated, and neither good thing should suffer from the experience. No other way of controlling the disease is known. Quarantine is unscientific, costly, and ineffective, for contagion will not be hedged in. Besides, very many cases of smallpox are never seen by a health officer, and they are met, not infrequently, on the cars or street.

WORK OF THE STATE HYGIENIC LABORATORY.

The experience of the eight months during which the laboratory has been in operation has shown that it is possible to actively coöperate in Berkeley, with health officers in far distant cities, in the work of repressing diphtheria. The laboratory has made examinations of diphtheria cultures from epidemics in Sacramento and Ontario, with a few scattering cases from other towns. In all, two hundred and forty-one serum cultures have been examined for diphtheria.

The value of a bacteriological examination is by no means restricted to the matter of diagnosis. The laboratory furnishes an accurate means for determining the duration of quarantine. The convalescent with virulent diphtheria organisms in his throat is quite as dangerous a source of infection as a case in which the membranes are present. Owing to the great variation under different circumstances, in the time required for the diphtheria organisms to disappear from the throat, no definite period of quarantine is just to all. Some may be released early; others drag on for months. Occasionally, in these latter instances, the organisms in the throat lose virulence, and such a circumstance warrants releasing the quarantine. Upon request by the health officer or physician, the laboratory will make an examination for virulence by guinea-pig inoculation of cultures from cases that have been under quarantine for a month or over.

When the first culture is sent from a case, and the report is desired for deciding a doubtful diagnosis, it may be possible in certain cases to render a report more promptly than usual. When such doubt exists, the physician is requested, after inoculating the serum tube, to again smear the swab against the membrane to gather as much material upon the swab as possible. Mark "swab examination" on the upper right-hand corner of the report card, and when the specimen arrives at the laboratory a direct microscopic examination will be made from the swab. If diphtheria organisms are found, a positive report will be telegraphed immediately; if not, the report will be deferred until the culture may be examined. Experience elsewhere has shown that half of the cases reported positive after examination of the serum may be reported positive from an examination of the swab. The special swab examination should not be requested in cases for release from quarantine.

The work of the laboratory has by no means been restricted to work on diphtheria. About a hundred other bacteriological examinations have been made of sputum, suspected typhoid blood, and public water supplies.

Through the courtesy of Professor M. E. Jaffa, of the Agricultural Experiment Station, the laboratory has been able to respond to requests for examinations of foodstuffs with reference to the presence of preservatives and to make a number of important toxicological analyses. Professor G. E. Colby has made analyses of waters and septic tank effluents.

The request by the Board of Supervisors of the City and County of San Francisco that the laboratory participate in a complete investigation of the milk supply of the city in its relations to public health, has occasioned an extensive amount of work upon milk.

ARCHIBALD R. WARD, Director.

GERMANY'S WORK IN COMBATING TUBERCULOSIS.

By F. M. POTTENGER, A. M., M. D., in Southern California Practitioner.

No nation in the world is going at the tuberculosis problem with so much earnestness as Germany. It is really fitting that this should be so, for this is the home of Koch, the discoverer of the tubercle bacillus. Here also lived Brehmer, that far-seeing humanitarian who was the father of the sanatorium idea, founding the first institution for the cure of tuberculosis half a century ago. He was so much in advance of his confreres that they thought him insane for persisting in his belief of the curability of this disease, which had baffled medical skill during all the ages. Largely through the labors of these two men, the one demonstrating tuberculosis to be a germ disease that can be prevented and the other that it can be cured, have the forces of the entire civilized world been directed against the great white plague.

Not only have many of the scientific problems connected with this disease been worked out in Germany, but here also has the prevention of the disease received its greatest support.

Imbued with the Brehmer idea, Germany has erected many sanatoria for the care of her people. She has 75 people's sanatoria with 7,085 beds, and 31 private institutions with 2,028 beds, and still more in the course of construction.

There is one class of persons which still deserves the earnest attention of those who are building institutions of this kind, and that is the class which is not able to enter a private institution and above accepting charity, and this class was considered at the last meeting of the Central Committee for erecting sanatoria, and it was urged that institutions be erected where a nominal sum would be charged to meet the needs of this worthy class.

The permanency of results in the sanatoria seems to be increasing. With wider experience, some of the mistakes of the earlier days of sanatorium work are being remedied and better and more lasting results are being obtained. The statistics of the Prusso-Hessian Railway Company for 1905 show that 53.61 per cent of their workers who had been discharged five years were still able to do full work. This is a gain of 4.54 per cent over the statistics of the preceding year. The statistics of Friedrichsheim Sanatorium show of patients dismissed three and four years, 70 per cent of the I stage, 55 per cent of the II stage, and 23 per cent of the II stage are still able to work.

Great as is the humanitarian movement which prompts the erection of the German sanatoria, where the poor afflicted with tuberculosis in its early stages can be restored to their earning power and to the bosom of their families, *it can not compare with that other great work which has been instituted in Berlin—I refer to the "Fuersorgstelle," or helping stations.* In different sections of Berlin, the committee in charge of the tuberculosis relief work has rented apartments where the poor who suspect that they have tuberculosis can come and receive aid. These apartments are very simple and are run in a very practical and economical manner. There is no attempt whatever at show. There are two rooms, one for a waiting-room, the other for examinations. The floors are bare, the walls plain, no curtains at the windows, no furniture, except a few chairs and a table. There are one, two, or three nurses attached to each one of these stations, whose duty it is to keep a careful record of every case, take the history of the patient, especially inquiring into the conditions under which the patient lives, give instructions to each patient, visit their homes, and instruct them in the proper care of the sick, especially with reference to preventing the spread of the disease. In case anything is needed to increase the patient's chances of a cure or in order to prevent the spread of the disease, this is furnished by the station. In this way patients are sent to sanatoria while they are in the early stages. Advanced cases are directed to hospitals and homes, if there is room for them; if not, they are sometimes taken away from their densely crowded quarters where there is danger of infecting their family and placed in more commodious quarters which are provided. Sometimes pillows, blankets, or even beds are furnished to add to the comfort of the afflicted. Food is also given and flasks for the care of the sputum are always provided. The nurses make regular visits, seeing that the rules are being obeyed and giving new instructions when necessary.

In case one member of a family is ill, all other members are required to come to the Station for examination. In this way as many as seven different individuals in a single family have been found afflicted. This careful work, this early finding out of the presence of the disease, and this watchfulness will eventually do more to root out the disease than any other measures imaginable. It is storming the disease in its stronghold; attacking it at its source. In my entire trip in Europe, I had nothing impress me so much as this rational plan of stamping out tuberculosis. Potter, Kayserling and their helpers are certainly heroes. Their names may not be written on the scroll of fame as they would be if they had slain their fellowmen in battle, but they will be indelibly stamped in the hearts of thousands of the poor, whose homes they have blessed by relieving the great white plague of much of its terror.

I do not wish to belittle any work that has been done anywhere in combating this dread disease, yet I believe that this work in the ''Fuersorgstelle'' in Berlin is the most comprehensive and most practical of all the measures heretofore inaugurated for combating tuberculosis. I should like to see such organizations in every city in our country. *We can stamp out tuberculosis in a reasonable time, if we go at it right.* We can let it continue its ravages, if we let it alone.

The foregoing article should be read and re-read and studied by every one interested in the extermination of tuberculosis, for it strikes at the root. If we can ever expect to limit to any great degree the ravages of tuberculosis we must strive to prevent people from contracting it. Taken in the incipient stage many can be cured, in the later stages some, but by no means all, and many who contract the disease, under whatever conditions they live, will die from it. By prevention all can be saved and cures will be unnecessary, but until that time comes the two must go hand in hand. Sanatoria should exist in every county and city, where incipient cases can be cared for and taught how to care for themselves. For those far advanced, where a cure is improbable, a hospital should be provided. There would be no need of extensive buildings, but a colony at the county or city hospital, distinct and separate from the main institution, but under the same management. This would reduce the expense to a minimum. Societies should be organized and the aid of philanthropic citizens secured to build sanatoria, where a reasonable charge could be made to those who do not need or will not accept public aid. But with these the ''helping stations'' should also be established, for in searching out the cases early and in helping and protecting the families lies the greatest good. The county and city authorities should take up and push this work to its full fruition, for there is nothing in the whole domain of social or political activity that can compare with it, for our annual death-rate from tuberculosis is tremendous, but it is a death-rate which can easily be lowered materially each year until it shall nearly cease.

IMPROVED SANITARY CONDITIONS.

The determination of the State Board of Health to enforce the law and prevent the unnecessary pollution of streams used for domestic purposes is bearing fruit, as shown by a general awakening of the people to the necessity of such a reform—a voluntary action on their part in some instances, and general acquiescence in a request from the Board in others.

In February, a representative of the Board, at the request of citizens, visited the San Lorenzo River in the Santa Cruz Mountains to make suggestions that would aid them in keeping that beautiful stream in its native purity. As a result of this interest the Board has already received plans of sewage-disposal plants from the trustees of Boulder Creek, and from Hon. A. H. Breed of Brookdale, a rapidly growing town two miles below. As soon as the other towns and summer resorts along the river have followed these excellent examples there will be no more beautiful or health-giving resort in the world than the Santa Cruz Mountains, and the good results will be felt in the healthfulness of the charming city at the mouth of the river, Santa Cruz.

Seabright is also discussing the question of sewage destruction, and will no doubt in a short time have a complete system.

Susanville has awakened to the knowledge that she has outgrown the cesspool period and is looking ahead for a greater growth which she is sure to get if she perseveres and puts in an up-to-date sewer system, with a proper disposal of the sewage. There is no question but what a good sewer system is second only to pure water, the most valuable asset of a city, and with the two, as Susanville can have, she can justly claim to be a gem of the mountains.

Lodi, stimulated by her rapid growth, also feels the need of a new and complete sewer system, and judging from the usual energy of her citizens, will accomplish this much desired improvement.

Lincoln, not to be outdone by any of her neighbors, even though larger, has just held a large and enthusiastic meeting in the interest of sewer bonds. A representative of the Board had the pleasure of being present, and the interest shown was most gratifying. The citizens of Lincoln evidently see that in order to get their share of the rapid development of the Sacramento Valley they must offer a clean, attractive town. The bonds should pass without opposition.

Oxnard is installing a septic-tank system of sewage disposal, with an outlet in the ocean. Why not use it for irrigation and save the valuable fertilizing properties in solution, and at the same time completely purify the water? The combination of the septic tank and irrigation seems the most rational, cheap, and effective system for this State.

These are not, by any means, the only cities and towns improving their sewer systems and means of disposal, but as the health officers have not reported particulars we can not record them.